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# Innovations and Updates on Orally Disintegrating Tablets

Sumathi A*, Akhil P, Suriyaprakash TNK, Lakshmana Prabu S

Department of Pharmaceutics, Al Shifa College of Pharmacy, Perinthalmanna, Kerala, India*

*Email: venisumathi@gmail.com

**ABSTRACT**

Recent and rising technologies can manufacture robust, versatile tablets with extraordinary taste masking and controlled release. In the design of dosage forms, comforts of drug administration and patient conformity have considerable prominence. Rapid disintegration of tablet cause quick dissolution and thus fast onset of action. Orally disintegrating tablets (ODTs) are solid dosage forms that disintegrate in the mouth in less than 60 seconds and are thus swallowed without the need for water. ODTs are suitable dosage form for special populations like pediatrics, geriatrics, psychotic, dysphagic, bedridden patients, unconscious patients, young patients with under developed muscular and nervous system, patients with hand tremors problems and frequent traveller patients. It provides good stability, accurate dosing, easy manufacturing, decreased packaging size; self-administration is possible during the journey, as water is not required. ODTs are an economical method of drug delivery. ODTs are very important drug delivery system in cases where drug absorbed from buccal cavity. Various techniques including spray drying, mass extrusion, sublimation, freeze drying, molding, direct compression etc. have been employed for the development of ODTs. Today, ODTs are more widely available as over the counter products for the treatment of numerous diseases. The aim of this article is to review the advantages, disadvantages, formulation challenges, manufacturing techniques, marketed formulations and evaluation tests of ODTs.

**Key words:** Orally Disintegrating Tablets; Methods of preparations; Evaluation; Marketed formulations.

**REVIEW ARTICLE**

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# Conn's Syndrome – A Type of Primary Hyperaldosteronism

Riji Mary Rari*, Alphonsa Anna Raju, Jayakrishnan S S, Ajith B
College of Pharmaceutical Sciences, Government Medical College, Thiruvananthapuram, Kerala India
*Email : rijimary8@gmail.com

**ABSTRACT**

Conn's syndrome also known as primary hyperaldosteronism, was named after J. W. Conn who first described it in 1955, in a patient who had hypertension with an aldosterone-producing adenoma. One of the most prevalent forms of secondary causes of hypertension among hypertensive subjects is primary hyperaldosteronism (PHA). The endocrine disorder, Conn's syndrome is signalized by increased blood pressure, hypokalemia and increased ratio of plasma aldosterone concentration (ng/dl) to plasma renin activity (ng/ml per hour). Aldosterone producing adenoma or bilateral adrenal hyperplasia are the most common causes of PHA. Since the presentation of this disorder may be varied and misleading, primary aldosteronism may create a diagnostic dilemma. The case detection test is aldosterone to renin ratio and plasma aldosterone to plasma renin activity ratio, which then followed by aldosterone suppression confirmatory testing, has resulted in increased occurrence rates in patients with hypertension. Diagnosis includes a screening test and a confirmatory test to detect inappropriately high and non-suppressible plasma aldosterone levels, radiological imaging to identify the adrenal tumor, and at times, adrenal vein sampling is used to assess lateralization of aldosterone excess. In patients with an aldosterone-secreting adenoma, the treatment of choice is unilateral adrenalectomy. Patients for whom, surgical therapy is not a reliable choice, long-term medical therapy with mineralocorticoid receptor antagonists or epithelial sodium-channel blockers can be the best option.

**Key words:** Adenoma, Aldosterone, Conn's syndrome, Hypertension, Primary hyperaldosteronism.

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# Evolution of Ayurvedic Formulation: A Journey from Classical to Contemporary Dosage Forms

Manas Ranjan Sahoo*, Ramesh R Varrier, Dileep R Varier
AVN Ayurveda Formulation Pvt Ltd.,
Vilachery Main road, Madurai-625004, Tamil Nadu, India
*Email: manas@avnayurveda.in

**ABSTRACT**

Plant based medicines are one of the most antique and oldest medicinal system have ever evolved on the mother earth along with human beings. On further development of civilization, the herbal medicines have been shaped into various established system of medicines such as Ayurveda (Indian system of medicines) and traditional Chinese medicine in China. With the advent of modern technology and science there has been immense development of herbal formulation from classical dosage form to conventional modern dosage forms to various novel drug delivery systems (NDDS). In this review, we have discussed the evolution of herbal and various ayurvedic formulations from ancient text to modern dosage forms. The review was made by systematic literature search and analysis of the current scenario. The literature search was carried out using search engines such Pubmed, Elsevier, Google scholar, Scopus, ancient Ayurvedic text.

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# Formulation and Evaluation of Verapamil Hydrochloride Matrix Tablets Using Combination of Tamarind Seed Polysaccharide and HPMC- K -100 as Release Retarding Agent

Asha Spandana K M*, Chythanya C Kutty
Department of Pharmaceutics, JSS College of Pharmacy, JSS Academy of Higher Education and Research, Mysuru, Karnataka, India
*E-mail: asha@jssuni.edu.in

**ABSTRACT**
In the present investigation, an attempt was made to prepare and evaluate sustained release matrix tablet containing Verapamil Hydrochloride (Verapamil HCl).The tablets were formulated by direct compression method. Compressed tablets were evaluated for uniformity of weight, content of active ingredient, hardness, friability, thickness and In vitro dissolution. The in vitro release study of matrix tablets were carried out in 0.1N HCl for 2 hours and pH was changed to 6.8 phosphate buffer for the rest of dissolution duration (10 hours).The release from formulation F2 was found to be slower and more sustained when compared to other formulations with 96.51% release at the end of 12 hours.

**Key words:** Matrix tablets, Verapamil Hydrochloride, Hydroxypropyl methylcellulose, sustained release tablets.

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# Validated RP-HPLC Method for the Quantitation of Ganciclovir in Capsule Dosage Form

C Jose Gnana Babu*, T Tamizh Mani
Bharathi College of Pharmacy, Bharathinagara, Mandya, Karnataka – 571422, India
*Email: josejino2@gmail.com

**ABSTRACT**

A simple, specific, accurate, precise and sensitive reverse phase high performance liquid chromatographic method has been developed for the quantitation of Ganciclovir in both pure and capsule dosage form. A Phenomenex Gemini C- 18, 5 µm column having 250×4.6 mm i.d. in isocratic mode with mobile phase containing 0.02M potassium dihydrogen phosphate and methanol in the ratio of 40:60, pH was adjusted to 3.8. The flow rate was 1.0 ml/min and the effluents were monitored at 272 nm. The retention time was 3.2 min. The linearity was in the range of 10-50 mcg/ml. This method was validated for linearity, precision, specificity, and limit of detection, limit of quantitation, accuracy, ruggedness and robustness. Statistical analysis proves that the method is reproducible and selective for the estimation of the said drug.

**Key words:** Ganciclovir, HPLC, Validation, Capsule dosage form.

**RESEARCH ARTICLE**

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# Detection and Reporting of Drug-Drug Interactions in Medical Intensive Care Unit: A Critical Care Pharmacy Service

Meera N K*, Mina Aghili

Department of Pharmacy Practice, Visveswarapura Institute of Pharmaceutical Sciences, Rajiv Gandhi University of Health Sciences, Bangalore, India.

*E-mail: meera_satish@yahoo.com

**ABSTRACT**

The complex nature of care provided in the intensive care unit (ICU) expose critically ill patients to poly-medication which makes pharmacological treatment as a significant risk factor for the occurrence of drug-drug interactions (DDIs). The clinical pharmacist contributes to ICU care team by proactive participation in daily medical round where pharmacist monitors efficacy of pharmacological treatment, prevention, identification and reporting DDIs. The study aimed to identify and report DDIs at medical ICU (MICU) of a tertiary care academic hospital, Bangalore, India. The prospective observational study has been carried out for a period of six months. The clinical pharmacist reviewed included patient`s medication chart for detection of DDIs. Lexicomp® drug interaction was used for risk and severity rating categorization of DDIs. A total of 112 patients were monitored and followed up on a daily basis by the pharmacist. Clinical pharmacist identified a total of 204 DDIs during the study period. The DDIs analysis revealed 60.3%, 29.9% and 9.8% interactions belonged to risk rating category of C, D, and X respectively. Thirty seven (18.14%) DDIs were categorized in the severity rating of major. Only thirty-two (15.68%) detected DDIs induced adverse outcome. The clinical pharmacist informed prescribers about severity rating of identified DDIs and provided recommendations regarding management of DDIs-related adverse event. Clinical pharmacist received 87.25% of acceptance rate by prescribers. Clinical pharmacist with proactive participation in monitoring of pharmacological treatment of critically ill patients can be a reliable member of the healthcare team to identify, alarm prescribers about drug interactions.

**Key words:** Drug-Drug Interactions, Medical Intensive Care Unit, Clinical Pharmacist, Critical Care Pharmacy Service

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# Effects of *Boerhaavia Diffusa Linn* on Estradiol Valerate induced Polycystic Ovary in Female Wistar Rats

G Nalini, K Marihrishnaa, N Chidambaranathan*, S A Syed Ibrahim
Department of Pharmacology, K.M. College of Pharmacy, Madurai - 625 107, Tamilnadu, India
*E-mail: ncpharmacology@gmail.com

**ABSTRACT**

Polycystic ovary syndrome (PCOS) is characterized by oligo-anovulation, clinical or biochemical hyperandrogenism and or polycystic ovary. The objective of the study was to investigate the effect of hydro alcoholic extract of Boerhaavia diffusa linn on female wistar rats with estradiol valerate induced poly cystic ovarian syndrome. Rats were allowed PCOS to establish for 30 days. They were segregated into five groups. Except normal control group, remaining groups were induced with poly cystic ovarian syndrome by intra muscular injection of estradiol valerate 4mg per rat in an oily solution, (G2) toxic control, standard (G3) received Clomiphene citrate for 5 days, treatment control received 200mg/kg and 400mg/kg of hydro alcoholic extract of Boerhaavia diffusa by oral gavage for 15 days. On 16th day the animals were sacrificed. Serum Hormonal assays, ovarian morphology, weight of ovary and histological studies were estimated. Imbalance in the levels of LH & FSH showed elevated LH/FSH ratio with pcos (toxic group) whereas after treatment showed a lower LH/FSH ratio. There was significant rise in Progesterone & oestrogen level in toxic control, whereas treatment with HAEBD reverse these changes. Histological studies of ovarian morphology in PCOS showed multiple cyst & follicle atresia whereas influence of the extract markedly reduces number of cystic follicles. Therefore it can be concluded Hydroalcoholic extract of Boerhaavia diffusa was effective in the treatment of polycystic ovary syndrome.

***Key words:*** Polycystic ovary syndrome, Estradiol, Clomiphene citrate, Hydroalcoholic extract